

What is claimed is:

1. A ring switchover method in a network constituted of layer 2 switches connected in a ring shape, each layer 2 switch having a path control function and a failure
5 detection function, said ring switchover method comprising the steps of:

providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored;

10 on detection of a link failure between mutually neighboring layer 2 switches, transmitting a failure notification frame packet from each neighboring layer 2 switch; and

in the layer 2 switch having received the failure
15 notification frame, recording a Media Access Control (MAC) address of said layer 2 switch into the failure notification frame, and transferring the failure notification frame to a neighboring layer 2 switch.

20 2. The ring switchover method according to claim 1, wherein, on receipt of the failure notification frame in a layer 2 switch having a blocking port, said layer 2 switch stores a record, indicative of the layer 2 switch of interest having a blocking port, into the failure
25 notification frame.

3. A ring switchover method in a network constituted

of layer 2 switches connected in a ring shape, each layer 2 switch having a path control function and a failure detection function, said ring switchover method comprising the steps of:

5 providing in each layer 2 switch an address learning table in which a Media Access Control (MAC) address and a corresponding port are stored;

 transmitting a state notification frame from a layer 2 switch connected in the ring shape successively to
10 neighboring layer 2 switches;

 in the neighboring layer 2 switch, detecting that the corresponding neighboring layer 2 switch is faulty when the state notification frames are not received for a predetermined number of times;

15 transmitting a failure notification frame packet from the layer 2 switch having detected the failure;

 recording a Media Access Control (MAC) address of the layer 2 switch having received the failure notification frame into said failure notification frame; and

20 transferring the failure notification frame to a neighboring layer 2 switch.

 4. A ring switchover method according to claim 1, wherein, when the network is separated into two network
25 groups caused by a failure, with respect to a host address connected to an arbitrary layer 2 switch, updating path information in the address learning table in a layer 2 switch

belonging to the other group than the group to which said layer 2 switch belongs, so that a packet transmission direction on the ring is shifted to a port side opposite to the direction having been used up to the present.

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5. A ring switchover method according to claim 2, wherein, when the network is separated into two network groups caused by a failure, with respect to a host address connected to an arbitrary layer 2 switch, updating path information in the address learning table in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs, so that a packet transmission direction on the ring is shifted to a port side opposite to the direction having been used up to the present.

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6. A ring switchover method according to claim 3, wherein, when the network is separated into two network groups caused by a failure, with respect to a host address connected to an arbitrary layer 2 switch, updating path information in the address learning table in a layer 2 switch belonging to the other group than the group to which said layer 2 switch belongs, so that a packet transmission direction on the ring is shifted to a port side opposite to the direction having been used up to the present.

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7. The ring switchover method according to claim 4, wherein updating the path information in the address

learning table is performed by exchanging address information related to system modification between the arbitrary layer 2 switch and the layer 2 switch belonging to the other group by use of a system switchover frame.

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8. The ring switchover method according to claim 5, wherein updating the path information in the address learning table is performed by exchanging address information related to system modification between the arbitrary layer 2 switch and the layer 2 switch belonging to the other group by use of a system switchover frame.

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9. The ring switchover method according to claim 6, wherein updating the path information in the address learning table is performed by exchanging address information related to system modification between the arbitrary layer 2 switch and the layer 2 switch belonging to the other group by use of a system switchover frame.

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10. The ring switchover method according to claim 7, wherein updating the path information in the address learning table is performed by transmitting either a broadcast frame in which a Media Access Control (MAC) address of a host under each layer 2 switch is set as an originating address, or a frame dedicatedly provided for updating the address learning table, at the time of a system switchover.

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11. The ring switchover method according to claim 8,
wherein updating the path information in the address
learning table is performed by transmitting either a
5 broadcast frame in which a Media Access Control (MAC)
address of a host under each layer 2 switch is set as an
originating address, or a frame dedicatedly provided for
updating the address learning table, at the time of a system
switchover.

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12. The ring switchover method according to claim 9,
wherein updating the path information in the address
learning table is performed by transmitting either a
broadcast frame in which a Media Access Control (MAC)
15 address of a host under each layer 2 switch is set as an
originating address, or a frame dedicatedly provided for
updating the address learning table, at the time of a system
switchover.